

CLAIMS

We claim:

1. A laser level comprising:

a housing;

5 a first shaft connected to the housing;

first and second bearings disposed on the first shaft,

a gimbal body disposed on the first and second bearings,

a second shaft connected to the gimbal body,

a third bearing disposed on the second shaft;

10 a pendulum disposed on the third bearing, and

a first laser diode disposed on the pendulum.

2. The laser level of Claim 1, further comprising a first line lens for converting a laser beam emitted by the first laser diode into a first planar beam.

3. The laser level of Claim 2, wherein the first planar beam forms a substantially
15 horizontal laser line upon contact with a surface.

4. The laser level of Claim 2, wherein the first planar beam forms a substantially vertical laser line upon contact with a surface.

5. The laser level of Claim 2, further comprising a second laser diode disposed on the pendulum.

20 6. The laser level of Claim 3, further comprising a second line lens for converting a laser beam emitted by the second laser diode into a second planar beam.

7. The laser level of Claim 2, wherein the second planar beam forms a substantially horizontal laser line upon contact with a surface.

8. The laser level of Claim 2, wherein the second planar beam forms a substantially vertical laser line upon contact with a surface.

9. A laser level comprising:

a housing;

5 a first shaft connected to the housing;

a first bearing disposed on the first shaft,

a gimbal body disposed on the first bearing,

a second shaft connected to the gimbal body,

second and third bearings disposed on the second shaft;

10 a pendulum disposed on the second and third bearings, and

a first laser diode disposed on the pendulum.

10. The laser level of Claim 9, further comprising a first line lens for converting a laser beam emitted by the first laser diode into a first planar beam.

11. The laser level of Claim 10, further comprising a second laser diode disposed
15 on the pendulum.

12. The laser level of Claim 11, further comprising a second line lens for converting a laser beam emitted by the second laser diode into a second planar beam.

13. A laser level comprising:

a housing having a first opening;

20 a pendulum pivotably connected to the housing;

a first laser diode disposed on the pendulum; and

a first line lens for converting a laser beam emitted by the first laser diode into a first planar beam exiting through the first opening;

wherein the housing is movable between a first position where the pendulum is within self-leveling range and a second position where the pendulum is outside the self-leveling range, and the first opening having at least one protrusion where, in the first position, the at least one protrusion does not obstruct the first planar beam and, in the
5 second position, the at least one protrusion partially obstructs the first planar beam.

14. The laser level of Claim 13, further comprising a second laser diode disposed on the pendulum, and a second line lens for converting a laser beam emitted by the second laser diode into a second planar beam exiting through a second opening in the housing.

10 15. The laser level of Claim 14, wherein the second opening having at least one protrusion where, in the first position, the at least one protrusion does not obstruct the second planar beam and, in the second position, the at least one protrusion partially obstructs the second planar beam.

16. A laser assembly comprising:

15 a first assembly having a first pin;
a second assembly pivotally connected to the first assembly;
a third assembly movably connected to the second assembly;
a laser level disposed on the third assembly;

wherein one of the second and third assemblies has a rack and the other of the
20 second and third assemblies has a pinion meshing with the rack so that, upon rotation of the pinion, the third assembly moves relative to the second assembly.

17. The laser assembly of Claim 16, wherein the first assembly has a second pin.

18. The laser assembly of Claim 16, wherein the first pin is retractable.

19. The laser assembly of Claim 16, wherein one of the first and second assemblies has a keyhole.

20. The laser assembly of Claim 19, wherein the second assembly pivots relative to the first assembly about an axis of rotation, and the keyhole is disposed on the axis of
5 rotation.

21. The laser assembly of Claim 16, wherein the rack has at least one enlarged tooth to limit a movement range of the third assembly relative to the second assembly.

22. The laser assembly of Claim 16, wherein the laser level is removably attached to the third assembly.

10 23. The laser assembly of Claim 16, wherein the laser level is removably attached to the third assembly via a magnet.

24. The laser assembly of Claim 23, wherein the magnet is pivotable.